

## **Exhausting Apparatus with an Air Dividing Case for Water Closet**

### **Field of the Invention**

This invention relates to an exhausting apparatus for water closet, especially an exhausting apparatus with an air dividing case for water closet.

### **Background of the invention**

At present, ventilation of toilets, whether public and home, domestic and abroad, is simply to exhaust air direct from toilets with exhaust fans. With this mode of ventilation, air from water closets could still be exhaled into space of the toilet, air in toilet would be with unpleasant odor, and surrounding would be contaminated. Inhaling this type of harmful gas would affect man's health.

There is another design in recent years. In this design, exhaust fan is connected through conduct direct to water closets and exhausts air in water closet. This design may avoid the disadvantage of unpleasant odor in water closet exhaled into the toilet, but it is necessary to provide a set of exhausting Apparatus for each water closet, this would increase investment and have a low utilization rate of exhaust Apparatus. In addition, it is sometimes necessary to install exhaust fans in toilets.

### **Summary of the Invention**

Purpose of this invention is to overcome shortcoming of prior arts and to provide an exhausting apparatus with an air dividing case for water closet.

The aim of this invention is realized as follows: an exhausting apparatus with an air dividing case for water closet, comprises water closet, exhaust fan and conducts, wherein the air dividing case has an inner chamber with an outlet and inlet. The outlet is connected to the inlet of exhaust fan through a conduct, while the inlet is connected to the water closet through a conduct. An adjustable air valve is equipped between the inlet and the inner chamber, and the outlet of exhaust fan is connected to outdoor through a conduct.

With this Invention, it is possible to provide through holes at the bottom of inner chamber of air dividing case to suck also air in toilets so that to realize vent of air in the toilet. It is possible to provide the through holes with removable lids to facilitate adjustment.

In this invention, it is possible to establish a inlet in inner chamber of air dividing case and to set an air separate plate inside it, which divides the inner chamber into two chambers that does not interlinked each other, namely one chamber to the water closet and other chamber to the toilet.

In this Invention, it is also possible to establish two inlets in the inner chamber of air dividing case, which are located two sides of the air dividing case respectively, so that the Apparatus can be used for

two water closets at the same time.

In this invention, it is also possible to establish three inlets in the inner chamber of air dividing case, one of which is located at one side of the air dividing case and other two of which are located at another side of the air dividing case, so that the Apparatus can be used for three water closets at the same time.

In this invention, it is possible to make rear exhaust hole of water closets to be connected through conduct to the inlets of inner chamber, and also to make overflow tube in water tank of water closets to be connected through conduct to the inlets of inner chamber in air dividing case.

Because of aforesaid structure used, this invention can exhaust air with unpleasant odor inside water closets direct to outdoor to prevent harmful gas from inhaled by persons, but also make one set Apparatus possible to be used for multiple water closets and/or toilets, so to reduce cost. It may keep air in toilets brisk and venting even with no exhaust fan installed.

#### **Brief Description of the Figures**

Following is further detailed description of this invention with attached figures.

Fig. 1 is a schematic drawing of the exhausting apparatus with two inlets for this invention.

Fig. 2 is a structural representation of the air dividing case with one inlet for this invention.

Fig. 3 is a structural representation of the air dividing case with two inlets for this invention.

Fig.4 is a structural representation of the air dividing case with three inlets for this invention.

Fig.5 is a drawing of one design of the conduct connection of water closets for this invention.

Fig.6 is a first drawing of another design of the conduct connection of water closets for this invention.

Fig.7 is a second drawing of another design of the conduct connection of water closets for this invention.

Where: 1. Water Closet; 10. Water Tank; 101. Overflow Tube; 11. Exhaust Hole; 2. Exhaust fan; 3. Conduct; 4. air dividing case; 41. Inner Chamber; 411. Chamber to Water Closet; 412. Chamber to Room; 42. Outlet; 43. Inlet; 44. Air Valve; 45. Through Hole; 46. Movable Lid; 47. Air Separate Plate.

#### **Detail Description of the Invention**

##### **Embodiment 1**

As shown in Fig. 1 and Fig. 3, exhausting apparatus with an air dividing case for water closet in this invention comprises water closet 1, exhaust

fan 2, conducts 3, and air dividing case 4. The air dividing case 4 is provided with an inner chamber 41 wherein there are outlet 42 and two inlets 43 at two sides of the air dividing case 4. The outlet 42 is connected to the inlet of exhaust fan 2 through a conduct 3, while the inlets is connected to two water closets through a conduct 3 respectively. The inlet 43 connects to the inner chamber 41 with adjustable air valves 44 provided between the inlet 43 and inner chamber 41. The adjustable air valve 44 is fixed on pivots and may rotate with its pivot. There is a through hole 45 to toilet on the bottom of inner chamber 41 of air dividing case 4. Through the hole 45 is provided with a movable lid 46 to adjust venting amount. Adjusting this movable lid may control incoming air amount from through the hole 45. The outlet of exhaust fan 2 is connected to outdoor through a conduct 3.

#### Embodiment 2

As shown in Fig. 2, it is basically the same as the embodiment 1 with following exception: there is only one inlet 43 provided in the inner chamber 41, while the inner chamber 41 is provided with an air separate plate 47 which divides the inner chamber 41 into two chambers that does not interlinked each other, namely one chamber to the water closet 411 and another chamber to the room 412. The chamber to the water closet 411 is located at the side of inlet 43, which is connected to the water closet 1 through the conduct 3. The chamber to the room 412 has at its bottom a through hole 45 toward to the toilet. Connection of this embodiment is the same as in embodiment 1, but it can be used for one water closet or toilet only.

#### Embodiment 3

As shown in Fig. 4, it is basically the same as embodiment 1 with following exception: there are three inlets 43 provided in the inner chamber 41 of air dividing case 4, one of which is located at one side of the air dividing case 4 and other two of which are located at another side of the air dividing case 4. Connection in this embodiment is the same as in embodiment 1, but it can be used for three water closets or toilets.

#### Embodiment 4

As shown in Fig. 5, an overflow tube 101 in the water tank 10 of water closet 1 is connected through conduct 3 to the inlets 43 of inner chamber 41 in the air dividing case 4.

#### Embodiment 5

As shown in Fig. 6, a rear exhaust hole 11 of the water closet 1 is located on the rear wall of inlet of water closet 1 below the water tank 10. The rear exhaust hole 11 is connected hermetically with the conduct (3), which another end is connected with the inlets (43) of inner chamber (41).

#### Embodiment 6

As shown in Fig. 7, the rear exhaust hole 11 of water closet 1 is a T-type central hole, in which its upper end is connected with the water outlet of water tank 10, the lower end is connected with the water inlet of water closet 1. The rear exhaust hole 11 is connected hermetically with one end of conduct (3), another end of conduct (3) is connected with inlets (43) of inner chamber (41).

Although the description above contains many specificities, these

should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of this invention. Thus the scope of the invention should be determined by the appended claims and their legal equivalents, rather than by the examples given.